Application No. 10/719,953

Reply to Office Action of 07/28/2010

DO NOT ENTER: /B.F./

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A system for detecting behavioral patterns related to the financial health of a business entity, comprising:

a computing device having a processor that executes at least one data collection application to extract financial data and business data that relates to the business entity from at least one data source,

wherein the financial data comprises:

- (i) quantitative financial data comprising financial numerical data, and
- (ii) qualitative financial data comprising financial narrative data representing events that financially affect the business entity,

and wherein the business data comprises:

- (i) quantitative business data comprising non-financial numerical data, and
- (ii) qualitative business data comprising non-financial narrative data representing events related to management and organization associated with the business entity;

and wherein the data collection application utilizes event detection and natural language processing Natural Language Processing to extract keywords and text patterns in the narrative data for the qualitative financial data and the qualitative business data; and

the processor performing analytics on the financial data and the business data via an analytics engine residing on the computing device as programming instructions and configured to perform analytics on the financial data and business data, wherein the analytics engine is configured to:

- (a) analyze quantitative data comprising the quantitative financial data and quantitative business data using a financial anomaly detection technique to detect the behavioral patterns associated with the business entity with respect to quantitative data;
- (b) <u>separately</u> analyze qualitative data comprising the qualitative financial data and qualitative business data using the financial anomaly detection technique to detect the behavioral patterns associated with the business entity with respect to qualitative data; and

Application No. 10/719,953

Reply to Office Action of 07/28/2010

DO NOT ENTER: /B.F./

(c) evaluate <u>and fuse</u> the analyzed quantitative data in combination with and in relation to the <u>separately</u> analyzed qualitative data using a reasoning methodology that incorporates temporal relationships and confidence levels to substantiate the detected behavioral patterns in relation to each other.

- 2. (Canceled)
- 3. (Canceled)
- 4. (Original) The system of claim 1, wherein the data source comprises at least one of quantitative business and financial information sources and qualitative business and financial information sources.
- 5. (Original) The system of claim 1, wherein the behavioral patterns comprises at least one of likelihood of fraud, financial credit or investment risk and good credit or investment prospect associated with the business entity.
- 6. (Original) The system of claim 1, wherein the data collection application comprises at least one of quantitative data collection applications and qualitative data collection applications.
- 7. (Original) The system of claim 6, wherein the quantitative data collection applications comprise commercial database data extraction tools and financial data extraction tools.
- 8. (Original) The system of claim 7, wherein the financial data extraction tools are configured to extract financial data and financial measures from the quantitative financial data and quantitative business data.
- 9. (Currently Amended) The system of claim 6, wherein the qualitative data collection applications comprise event detection and natural language processing Natural Language Processing tools.

Application No. 10/719,953

Reply to Office Action of 07/28/2010

DO NOT ENTER: /B.F./

10. (Currently Amended) The system of claim 9, wherein the event detection and natural language processing Natural Language Processing tools are configured to extract keywords and

text patterns from the qualitative financial data and qualitative business data.

11. (Original) The system of claim 1, wherein the financial anomaly detection technique

comprises at least one of outlier detection, trend analysis, correlation analysis, regression and

factor and cluster analysis.

12. (Original) The system of claim 1, wherein the financial anomaly detection technique

detects the behavioral patterns based on an analysis of at least one of past financial measures

related to the business entity, past financial measures related to at least one industrial segment

associated with the business entity and current financial measures related to at least one

industrial segment associated with the business entity.

13. (Canceled).

14. (Original) The system of claim 1, wherein the analytics engine is further configured to

generate an alert signal, wherein the alert signal comprises at least one of a visual representation

and textual representation of the detected behavioral patterns.

15. (Currently Amended) A method for detecting behavioral patterns related to the

financial health of a business entity, comprising:

extracting financial data and business data that relates to the business entity from at

least one data source,

wherein the financial data comprises

(i) quantitative financial data comprising financial numerical data, and

(ii) qualitative financial data comprising financial narrative data representing

events that financially affect the business entity,

and wherein the business data comprises:

(i) quantitative business data comprising non-financial numerical data, and

DO NOT ENTER: /B.F./

Application No. 10/719,953

Reply to Office Action of 07/28/2010

DO NOT ENTER: /B.F./

(ii) qualitative business data comprising non-financial narrative data representing

events related to management and organization associated with the business entity;

and wherein extraction comprises utilizing event detection and natural language

processing Natural Language Processing to extract keywords and text patterns in the financial

narrative data and the non-financial narrative data; and

analyzing quantitative data comprising the quantitative financial data and quantitative

business data using a financial anomaly detection program to detect behavioral patterns

associated with the business entity with respect to quantitative data, wherein said program is

executed by a processor;

separately analyzing qualitative data comprising the qualitative financial data and

qualitative business data using the financial anomaly detection program to detect behavioral

patterns associated with the business entity with respect to qualitative data, wherein said program

is executed by the processor; and

evaluating and fuse the analyzed quantitative data in combination with and in relation

to the separately analyzed qualitative data using a reasoning methodology that incorporates

temporal relationships and confidence levels to substantiate the detected behavioral patterns in

relation to each other.

16. (Canceled)

DO NOT ENTER: /B.F./

17. (Canceled)

18. (Original) The method of claim 15, wherein the data source comprises at least one of

quantitative business and financial information sources and qualitative business and financial

information sources.

19. (Original) The method of claim 15, wherein the behavioral patterns comprise at least

one of likelihood of fraud, financial credit or investment risk and good credit or investment

prospect associated with the business entity.

DO NOT ENTER: /B.F./

DO NOT ENTER: /B.F./

10719953 - GAU: 3684 👍

Application No. 10/719,953

Reply to Office Action of 07/28/2010

DO NOT ENTER: /B.F./

10719953 - GAU: 3684

20. (Original) The method of claim 15, wherein the extracting further comprises extracting

quantitative financial data and quantitative business data and extracting qualitative financial data

and qualitative business data that relates to the business entity.

21. (Original) The method of claim 20, wherein extracting quantitative financial data and

quantitative business data further comprises extracting financial data and financial measures

from the quantitative financial data and quantitative business data.

22. (Original) The method of claim 20, wherein extracting qualitative financial data and

qualitative business data further comprises extracting keywords and text patterns from the

qualitative financial data and qualitative business data.

23. (Original) The method of claim 15, wherein the financial anomaly detection technique

detects the behavioral patterns based on an analysis of at least one of past financial measures

related to the business entity, past financial measures related to at least one industrial segment

associated with the business entity and current financial measures related to at least one

industrial segment associated with the business entity.

24. (Canceled).

25. (Original) The method of claim 15, further comprises generating an alert signal,

wherein the alert signal comprises at least one of a visual representation and textual

representation of the detected behavioral patterns.

26. (Currently Amended) A computer-readable medium storing computer instructions for

instructing a computer system to detect behavioral patterns related to the financial health

associated with a business entity, the computer instructions comprising:

(a) extracting financial data and business data that relates to the business entity from at

least one data source, wherein the financial data comprises quantitative financial data and

DO NOT ENTER: /B.F./

Application No. 10/719,953

Reply to Office Action of 07/28/2010

DO NOT ENTER: /B.F./

qualitative financial data, and wherein the business data comprises quantitative business data and

qualitative business data,

wherein said quantitative financial data comprises financial numerical data, and

wherein said quantitative business data comprises numerical non-financial numerical

data the business entity, and

wherein said qualitative financial data comprises financial narrative data representing

events that financially affect the business entity, and

qualitative business data comprises non-financial narrative data representing events

related to management and organization associated with the business entity;

and wherein extraction comprises utilizing event detection and natural language

processing Natural Language Processing to extract keywords and text patterns in the financial

narrative data and the non-financial narrative data,

(b) analyzing quantitative data comprising the quantitative financial data and

quantitative business data using a financial anomaly detection program residing on said

computer-readable medium to detect the behavioral patterns associated with the business entity

with respect to quantitative data; and

(c) <u>separately</u> analyzing qualitative data comprising the qualitative financial data and

qualitative business data using the financial anomaly detection program residing on said

computer-readable medium to detect the behavioral patterns associated with the business entity

with respect to qualitative data; and

(d) evaluating and fusing the analyzed quantitative data in combination with and in

relation to the separately analyzed qualitative data using a reasoning methodology that

incorporates temporal relationships and confidence levels to substantiate the detected behavioral

patterns in relation to each other.

27. (Canceled)

DO NOT ENTER: /B.F./

28. (Canceled)

29. (Original) The computer-readable medium of claim 26, wherein the extracting

comprises instructions for extracting quantitative financial data and quantitative business data

DO NOT ENTER: /B.F./

10719953 - GAU: 3684

Application No. 10/719,953

Reply to Office Action of 07/28/2010

DO NOT ENTER: /B.F./

10719953 - GAU: 3684

and extracting qualitative financial data and qualitative business data that relates to the business

entity.

30. (Original) The computer-readable medium of claim 26, wherein the financial anomaly

detection technique detects the behavioral patterns based on an analysis of at least one of past

financial measures related to the business entity, past financial measures related to at least one

industrial segment associated with the business entity and current financial measures related to at

least one industrial segment associated with the business entity.

31. (Canceled).

32. (Original) The computer readable medium of claim 26 further comprises instructions

for generating an alert signal, wherein the alert signal comprises at least one of a visual

representation and textual representation of the detected behavioral patterns.

33. (Currently Amended) A method for detecting behavioral patterns related to the

financial health of a business entity, comprising:

(a) extracting financial data and business data that relates to the business entity from at

least one data source,

wherein the financial data comprises:

(i) quantitative financial data comprising financial numerical data, and

(ii) qualitative financial data comprising financial narrative data representing

events that financially affect the business entity,

and wherein the business data comprises:

(i) quantitative business data comprising non-financial numerical data, and

(ii) qualitative business data comprising non-financial narrative data representing

events related to management and organization associated with the business entity;

and wherein the data collection application utilizes event detection and natural language

processing Natural Language Processing to extract keywords and text patterns in the narrative

data for the qualitative financial data and the qualitative business data; and

DO NOT ENTER: /B.F./

Application No. 10/719,953

Reply to Office Action of 07/28/2010

DO NOT ENTER: /B.F./

(b) analyzing quantitative data comprising the quantitative financial data and quantitative business data using a financial anomaly detection program residing on a processor to detect the behavioral patterns associated with the business entity with respect to quantitative data;

- (c) <u>separately</u> analyzing qualitative data comprising the qualitative financial data and qualitative business data using the financial anomaly detection program residing on the processor to detect the behavioral patterns associated with the business entity with respect to qualitative data; wherein the financial anomaly detection program detects the behavioral patterns based on an analysis of at least one of past financial measures related to the business entity, past financial measures related to at least one industrial segment associated with the business entity and current financial measures related to at least one industrial segment associated with the business entity; and
- (d) evaluating and fusing by the processor the analyzed quantitative data in combination with and in relation to the <u>separately</u> analyzed qualitative data using a reasoning methodology that incorporates at least one of temporal relationships, interactions, and confidence levels to substantiate the detected behavioral patterns in relation to each other.
- 34. (Currently Amended) A method for detecting behavioral patterns related to the financial health of a business entity, comprising:
- (a) extracting financial data and business data that relates to the business entity from at least one data source,

wherein the financial data comprises:

- (i) quantitative financial data comprising financial numerical data, and
- (ii) qualitative financial data comprising financial narrative data representing events that financially affect the business entity,

and wherein the business data comprises:

- (i) quantitative business data comprising non-financial numerical data, and
- (ii) qualitative business data comprising non-financial narrative data representing events related to management and organization associated with the business entity;

Application No. 10/719,953

Reply to Office Action of 07/28/2010

DO NOT ENTER: /B.F./

and wherein the data collection application utilizes event detection and natural language

processing Natural Language Processing to extract keywords and text patterns in the narrative

data for the qualitative financial data and the qualitative business data; and

(b) analyzing quantitative data comprising the quantitative financial data and

quantitative business data using a financial anomaly detection algorithm residing on a processor

to detect the behavioral patterns associated with the business entity with respect to quantitative

data;

(c) separately analyzing qualitative data comprising the qualitative financial data and

qualitative business data using the financial anomaly detection algorithm residing on the

processor to detect the behavioral patterns associated with the business entity, wherein the

financial anomaly detection technique detects the behavioral patterns with respect to qualitative

data based on an analysis of at least one of past financial measures related to the business entity,

past financial measures related to at least one industrial segment associated with the business

entity and current financial measures related to at least one industrial segment associated with the

business entity; and

(d) evaluating and fusing by the processor the analyzed quantitative data in

combination with and in relation to the separately analyzed qualitative data using a reasoning

methodology to substantiate the detected behavioral patterns in relation to each other.

DO NOT ENTER: /B.F./

DO NOT ENTER: /B.F./

10719953 - GAU: 3684

DO NOT ENTER: /B.F./

10 of 13